

Application Number: 09/605,979
Reply to Office Action Dated July 18, 2007

LISTING OF THE CLAIMS

1. A medical glove having improved cut resistance comprising:
at least three dipped formed elastomeric layers combined to form the entire glove, the at least three elastomeric layers including an innermost layer, an outermost layer, and a middle layer, wherein the middle layer contains a three dimensional network of chopped fibers randomly dispersed throughout for enhancing the glove's cut resistance.
2. A medical glove, as set forth in claim 1, where said fibers for enhancing the glove's cut resistance are selected from the group consisting of glass fibers, steel fibers, aramid fibers, polyethylene fibers, particle filled polymeric fibers, and mixtures thereof.
3. A medical glove, as set forth in claim 2, wherein said fibers are particle filled polymeric fibers.
4. A medical glove, as set forth in claim 2, wherein said fibers are ultra high molecular weight polyethylene fibers.
5. A medical glove, as set forth in claim 1, wherein at least one layer of said at least three elastomeric layers comprises a polymer selected from the group consisting of natural rubber, polychloroprene, styrene-isoprene-styrene block copolymers, styrene-ethylene butylene-styrene block copolymers, styrene-butadiene-styrene block copolymers, polyurethane, polyurea, nitrile rubber, vinyl chloride based polymers and mixtures thereof.
6. A medical glove, as set forth in claim 5, wherein said polymer is natural latex.
7. A medical glove, as set forth in claim 5, wherein said polymer is a mixture of styrene-isoprene-styrene and styrene-ethylene butylene-styrene block copolymers.

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8. A medical glove, as set forth in claim 1, wherein said glove's cut resistance is increased by at least about 20 percent by the addition of about 2 to about 20 weight percent of said fibers.

9. A medical glove, as set forth in claim 1, wherein said at least three elastomeric layers comprises a polymer that is a mixture of styrene-butadiene-styrene and styrene-isoprene-styrene block copolymers.

10. A medical glove, as set forth in claim 1, wherein said glove contains from about 2 to about 20 percent fiber based on the entire weight of the glove.

11. A medical glove, as set forth in claim 1, wherein said at least three elastomeric layers define a single layer palm thickness of the glove from about 0.08 to about 0.4 mm, a single layer finger thickness from about 0.08 to about 0.45 mm, and a single layer cuff thickness of the glove from about 0.08 to about 0.2 mm.

12. A medical glove, as set forth in claim 1, wherein the tensile strength of the glove is at least about 17 MPa, the elongation of the glove is at least about 650 percent, and the 500% modulus of the glove is less than about 7 MPa.

13. A medical glove, as set forth in claim 1, wherein the tensile strength of the glove is at least about 24 MPa, the elongation of the glove is at least about 750 percent, and the 500% modulus of the glove is less than about 5.5 MPa.

14. A medical glove, as set forth in claim 1, where said fibers have a length of from about 0.1 mm to about 5.0 mm.

15. A medical glove, as set forth in claim 1, where said fibers have a denier that is from about 1 to about 10.

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16. (amended) A glove having increased cut resistance comprising:
at least one polymeric layer, wherein the at least one polymeric layer includes chopped fibers that are randomly dispersed therein thus forming a nonwoven glove having cut and puncture resistance throughout.

17. A glove, as set forth in claim 16, wherein said polymeric layer comprises a polymer selected from the group consisting of natural rubber, polychloroprene, styrene-isoprene-styrene block copolymers, styrene-butadiene-styrene block copolymers, styrene-ethylene butylene-styrene block copolymers, polyurethane, polyurea, nitrile rubber, vinyl chloride based polymers, and mixtures thereof.

18. A glove, as set forth in claim 16, wherein said fibers are selected from the group consisting of glass fibers, steel fibers, aramid fibers, polyethylene fibers, particle filled polymeric fibers, and mixtures thereof.

19. A glove, as set forth in claim 16, where a single layer palm thickness of the glove is from about 0.08 to about 0.2 mm.

20. (amended) A medical glove having improved cut resistance comprising an innermost layer, an outermost layer, and a middle layer therebetween, where the middle layer extends throughout the entire glove and includes a three dimensional network of chopped fibers randomly dispersed throughout for enhancing the cut resistance of the glove, wherein at least one of the innermost layer and the outermost layer is nonwoven.

21. A medical glove, as set forth in claim 20, wherein each of the plurality of chopped fibers has a thickness dimension ranging from about 0.1 mm to about 0.2 mm and includes a length dimension from about 0.1 mm to about 5 mm.

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22. A medical glove, as set forth in claim 20, wherein each of the plurality of chopped fibers has a denier ranging from about 1 to about 10.

23. (added) A polymeric film having increased cut resistance consisting essentially of:

a polymeric layer, wherein the polymeric layer includes chopped fibers that are randomly dispersed therein thus forming a polymeric film having cut and puncture resistance throughout, and a nonwoven polymeric layer substantially devoid of chopped fibers.

24. (added) A polymeric film, as set forth in claim 23, wherein said polymeric layer comprises a polymer selected from the group consisting of natural rubber, polychloroprene, styrene-isoprene-styrene block copolymers, styrene-butadiene-styrene block copolymers, styrene-ethylene butylene-styrene block copolymers, polyurethane, polyurea, nitrile rubber, vinyl chloride based polymers, and mixtures thereof.

25. (added) A polymeric film, as set forth in claim 23, wherein said fibers are selected from the group consisting of glass fibers, steel fibers, aramid fibers, polyethylene fibers, particle filled polymeric fibers, and mixtures thereof.

26. (added) A polymeric film, as set forth in claim 23, wherein said fibers are particle filled polymeric fibers.

27. (added) A polymeric film, as set forth in claim 23, wherein the polymeric film's cut resistance is increased by at least about 20 percent by the addition of about 2 to about 20 weight percent of said fibers.

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28. (added) A polymeric film, as set forth in claim 23, wherein the tensile strength of the polymeric film is at least about 17 MPa, the elongation of the polymeric film is at least about 650 percent, and 500% modulus of the polymer film is less than about 7 MPa.

29. (added) A polymeric film, as set forth in claim 23, wherein the tensile strength of the polymeric film is at least about 24 MPa, the elongation of the polymeric film is at least about 750 percent, and the 500% modulus of the polymeric film is less than about 5.5 MPa.

30. (added) A polymeric film, as set forth in claim 23, wherein each of the said chopped fibers has a denier ranging from about 1 to about 10.

31. (added) A polymeric film, as set forth in claim 23, wherein said chopped fibers have a length of from about 0.1 mm to about 5.0 mm.

32. (added) An article formed from a polymeric film having increased cut resistance, said polymeric film consisting essentially of:

a polymeric layer, wherein the polymeric layer includes chopped fibers that are randomly dispersed therein to form a polymeric film having cut and puncture resistance throughout and a nonwoven polymeric layer substantially devoid of chopped fibers.

33. (added) An article, as set forth in claim 32, wherein said polymeric layer comprises a polymer selected from the group consisting of natural rubber, polychloroprene, styrene-isoprene-styrene block copolymer, styrene-butadiene-styrene block copolymers, styrene-ethylene butylene-styrene block copolymers, polyurethane, polyurea, nitrile rubber, vinyl chloride based polymers, and mixtures thereof.

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34. (added) An article, as set forth in claim 32, wherein said fibers are selected from the group consisting of glass fibers, steel fibers, aramid fibers, polyethylene fibers, particle filled polymeric fibers, and mixtures thereof.

35. (added) A medical glove according to claim 1, wherein said middle elastomeric layer includes from 70-98% by weight of at least one polymer.

36. (added) A medical glove according to claim 35, wherein said middle elastomeric layer further includes from 2 to 30% by weight fibers.

37. (added) A glove according to claim 16, wherein said polymeric layer includes from 70 to 98% by weight of at least one polymer.

38. (added) A glove according to claim 37, wherein said polymeric layer further includes from 2 to 30% by weight fibers.

39. (added) A polymeric film according to claim 23, wherein said polymeric layer includes from 70 to 98% by weight of at least one polymer.

40. (added) A polymeric film as in claim 39, wherein said polymeric layer further includes from 2 to 30% by weight fibers.

41. (added) An article according to claim 32, wherein said polymeric layer includes from 70 to 98% by weight of at least one polymer.

42. (added) An article according to claim 41, wherein said polymeric layer further includes from 2 to 30% by weight fibers.